

REMARKS

This Amendment is filed in response to the non-final Office Action dated May 30, 2008, and is respectfully submitted to be fully responsive to the rejections raised therein. Accordingly, favorable reconsideration on the merits and allowance is respectfully submitted to be proper.

The amendment to claim 1 and how it responds to the rejections set forth in the Office Action is explained below in detail.

In the present Amendment, claim 1 has been amended to incorporate the subject matter recited in claim 2.

Claim 3 has been amended to depend from claim 1.

Claims 4-9 have been canceled.

No new matter has been added. Entry of the Amendment is respectfully submitted to be proper. Upon entry of the Amendment, claims 1 and 3 will be all the claims pending in the application.

I. Response to Rejection Under 35 U.S.C. § 102(b)/§ 103(a) Based on Matijevic

Claims 1-3 are rejected under 35 U.S.C. § 102(b) as assertedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as assertedly being obvious over U.S. Patent 5,318,797 (“Matijevic”).

Applicants traverse and request reconsideration and withdrawal of the rejection in view of the amendments to the claims and further in view of the following remarks.

Present claim 1 has been amended by incorporating the subject matter recited in original claim 2. Claim 1 therefore is directed to hollow ceramics particles having a hollow structure formed by a porous shell layer comprising ceramics powders bonded to each other and having an average particle diameter of from 10 to 100 μm and a breaking strength of 5×10^4 MPa or more, wherein the average thickness of the aforementioned porous shell layer is from 2 to 60 μm .

Matijevic fails to teach ceramic particles having a breaking strength of 5×10^4 MPa or more, as conceded by the Office.

Matijevic discloses a range of thickness of the shell that is outside the present range recited in claim 1 (2 to 60 μm). The particles of the shells in Matijevic have outer diameter ranging from 0.07 to 30 microns (μm) and the ratio of the core diameter to the outer diameter is 0.4 to 0.95. For instance, Example 4-1 of Matijevic discloses that the particles have an average particle size of 0.2 micron and a ratio of the core diameter to the outer diameter is 0.60. (See, Matijevic column 14, lines 1-11). In this embodiment, the thickness of the outer shell is 0.04 microns. Furthermore, claim 1 is not rendered obvious by the generic teaching in the description of Matijevic because the disclosure teaches that the particles have an outer diameter of 0.07 to 30 microns and a ratio of the core diameter to the outer diameter of 0.40 to 0.95.

Claim 3 depends from claim 1 and is therefore patentable over Matijevic for at least the reasons mentioned above with respect to the patentability of claim 1. Accordingly, Applicants respectfully request withdrawal of this rejection.

II. Response to Rejection Under 35 U.S.C. § 103(a) Based on Barron

Claims 1-5 and 7-9 are rejected under 35 U.S.C. § 103(a) as assertedly being unpatentable over U.S. 2004/0224155 (“Barron”).

Applicants traverse.

Barron does not explicitly teach a breaking strength of its spherical shells and does not explicitly teach a thickness of the shells from 2 to 60 micron as recited in present claim 1. Barron specifically states that the thickness of the hollow alumina spheres synthesized from a 2 wt % A-alumoxane is approximately 1 micron. (See Barron at paragraph [0046]. Barron goes on to state that thicker walls may be formed with increasing alumoxane concentrations. However, the disclosure of Barron does not provide guidance to lead one of ordinary skill in the art to make or use a hollow ceramic particles having an average thickness of the porous shell ranging from 2-60 μ m. Thus, Barron does not teach all the limitations of claim 1 and fails to provide a suggestion or teachings to provide motivation to modify the teachings thereof to reach the subject matter of currently presented claim 1 with reasonable expectation of success.

The rejection of claims 2, 4, 5 and 7-9 is moot because these claims have been canceled without prejudice. Claim 3 depends from claim 1 and is therefore patentable over Barron for at least the reasons mentioned with respect to the patentability of claim 1. Accordingly, Applicants request that the rejection over claims 1 and 3 be withdrawn.

III. Rejection Under 35 U.S.C. § 103(a) Based on Kamimura and Barron

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,223,213 (“Kamimura”).

Applicants respectfully traverse and request reconsideration in view of the amendments to the claims and further in view of the following remarks.

Kamimura teaches a cast product. The object of the invention in Kamimura is to improve the strength and thermal insulation ability of a cast product, to obtain a ceramic product suitable for mechanical cutting, and to obtain a product in which the ceramic particulates and the metallic particulates are homogeneously mixed together. The ceramic particulates in Kamimura are preferably hollow ceramic particulates having a diameter between 10 and 500 micrometers and having a diameter ratio of the ceramic particulate to the metallic particulate about 10:1. The ceramic particulate may be Al₂O₃ or volcanic ash. The metallic particulates may be iron metal or stainless material.

Neither Barron nor Kamimura teach, suggest, motivate or provide reason to obtain a hollow ceramic having the breaking strength of the particles or the thickness of the ceramic shell as recited in present claim 1. Therefore, the combination of Kamimura and Barron appear to be deficient because Barron does not appear to cure the deficiencies of Kamimura with respect to the thickness of the porous shell. Thus, Applicants respectfully request that the rejection be withdrawn.

The rejection of claims 4-9 are moot because these claims have been canceled. Claim 3 depends from claim 1 and is therefore patentable over Barron for at least the reasons mentioned with respect to the patentability of claim 1. Accordingly, Applicants request that the rejection over claims 1 and 3 be withdrawn.

IV. Response to Rejection Under 35 U.S.C. § 103(a) Based on Kamimura and Matijevic

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamimura, in view of Matijevic.

Applicants traverse and request that the rejection be withdrawn in view of the amendments to the claims and in further view of the following remarks.

As mentioned above, Kamimura does not teach or suggest the breaking strength of the hollow ceramic particles or the thickness of the porous shell layer. The combination of Matijevic and Kamimura is deficient because Matijevic does not cure the deficiencies of Kamimura with respect to the breaking strength of the hollow ceramic particles or the thickness of the porous shell layer.

The rejection of claims 4-9 are moot because these claims have been canceled. Claim 3 depends from claim 1 and is therefore patentable over Barron for at least the reasons mentioned with respect to the patentability of claim 1. Accordingly, Applicants request that the rejection over claims 1 and 3 be withdrawn.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Sunhee Lee/

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON DC SUGHRUE/265550

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CUSTOMER NUMBER

Sunhee Lee
Registration No. 53,892

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